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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/902,806

07/12/2001

Nicholas J. Frigo

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12/13/2004

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EXAMINER

SEDIGHIAN, REZA

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/902,806	FRIGO ET AL.	
	Examiner	Art Unit	
	M. R. Sedighian	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/11/01</u> . | 6) <input type="checkbox"/> Other: _____ |

1. Claim 1 is objected because of the following informality:

The word "arena" in line 2, should change to --- area---.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "said user terminal" in line 10. There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites the limitation "said optical amplifiers" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 16 recites the limitation "said wavelength independent modulators" in line 2. There is insufficient antecedent basis for this limitation in the claim.

As to claim 17, it is not clear what is meant by "... wherein one of said plurality of corresponding WDM receivers detects data packets is sent upstream". What does it mean by WDM receivers detects data packets is sent upstream??

Claim 18 recites the limitation "said plurality of corresponding receivers" in line 2-3. There is insufficient antecedent basis for this limitation in the claim.

Claim 20 recites the limitations "said at least one counter-propagating fiber optical distribution ring" in line 10, and "said user terminal" in line 11. There are insufficient antecedent basis for these limitations in the claim.

Claim 32 recites the limitations "the bi-directional transmission" in line 2, and "the MAC protocol" in line 3. There are insufficient antecedent basis for these limitations in the claim.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-7, 10, 20-27, and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Li et al. (US Patent No: 6,616,349).

Regarding claims 1 and 20, as it is understood in view of the above 112 problem, Li teaches a WDM fiber ring network architecture (10, fig. 2) for communicating information into a metro access area (22, 41, 43, fig. 2) using one or more wavelengths (col. 4, lines 20-31), which can be shared by a plurality of user terminals (col. 4, lines 30-49), comprising: a fiber optical feeder ring (20, fig. 2); at least one fiber optical distribution ring (30, 40, fig. 2); a network node (21, fig. 2); at least one access node (50, fig. 2), wherein the network node (21, fig. 2) and the access node (50, fig. 2) are connected via the optical fiber feeder ring (20, fig. 2); and at least one end station (32, fig. 2) connected via the optical distribution ring (30, fig. 2) to the access node (50, fig. 2), wherein a user terminal is attached to the End station (col. 4, lines 40-46 and 32, fig. 2). As to claim 20, Li further teaches a pair of counter-propagating fiber optical feeder rings (20, fig. 2, note that ring 20 has a pair of counter-propagating fibers, as it is shown in fig. 2).

Regarding claims 2-3, Li teaches the fiber optical feeder ring and the distribution ring are transparent (col. 4, lines 29-32).

Regarding claim 4, Li teaches the feeder ring is unidirectional (the transmission of signal from node 21 to interface 50 through ring 20 is unidirectional).

Regarding claims 5, 22-23, and 25, Li further teaches the network node (21, figs. 2, 10) comprises of a plurality of WDM sources (TXs, fig. 10), a plurality of WDM receivers (RXs, fig. 10), a multiplexer (120, fig. 10), and a demultiplexer (110, fig. 10).

Regarding claims 6 and 26-27, Li further teaches the access node (50, fig. 2) comprises of an optical add-drop multiplexer (OADM, 50, fig. 3 and 50', 71, 72, fig. 8), wherein the OADM defines distribution loops in which a single wavelength forms a virtual ring that is being accessible by the end station (col. 6, lines 1-21).

Regarding claim 7, Li teaches the OADM is static (col. 6, lines 11-17).

Regarding claim 10, Li teaches the OADM is reconfigurable (col. 8, lines 25-33).

Regarding claim 21, Li further teaches a pair of counter-propagating fiber distribution ring (30, fig. 2, note that distribution ring 30 has a pair of counter-propagating fibers, as it is shown in fig. 2).

Regarding claim 24, Li further teaches a plurality of WDM transceivers (21, TXs, RXs, fig. 10) for each pair of counter-propagating fiber optical feeder ring (20, fig. 2), an optical splitter (110, fig. 10), and an optical filter (col. 6, lines 40-56).

Regarding claim 32, as it is understood in view of the above 112 problem, Li further teaches the pair of counter-propagating fiber optical feeder ring allow protection from a single

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point of failure such that signal transmission is preserved (col. 2, lines 24-35, col. 6, lines 57-67, col. 7, lines 1-11).

6. Claims 1, 5, 13, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Sasaki et al. (US Patent No: 6,785,473).

Regarding claim 1, as it is understood in view of the above 112 problem, Sasaki teaches a WDM fiber ring network architecture (301, fig. 3) for communicating information into a metro access area (303, fig. 3) using one or more wavelengths (col. 3, lines 50-53), which can be shared by a plurality of user terminals (321, 322, fig. 3), comprising: a fiber optical feeder ring (302, fig. 3); at least one fiber optical distribution ring (303, fig. 3); a network node (312, fig. 3); at least one access node (314, fig. 3), wherein the network node (312, fig. 3) and the access node (314, fig. 3) are connected via the optical fiber feeder ring (302, fig. 3); and at least one End station (322, fig. 3) connected via the optical distribution ring (303, fig. 3) to the access node (314, fig. 3), wherein a user terminal is attached to the End station (322, fig. 3).

Regarding claim 5, Sasaki teaches the network node comprises WDM sources (col. 3, lines 25-36), receivers (col. 4, lines 41-60), multiplexer, and demultiplexer (col. 4, lines 35-37).

Regarding claim 13, Sasaki further teaches the information comprises of downstream data packets (501, fig. 5), optical chalkboard packets consisting of a recognizable pattern and control signals (col. 4, lines 26-40 and fig. 5).

Regarding claim 17, Sasaki further teaches the WDM sources and the multiplexer create data packets at a wavelength, and the data packets being sent downstream over the fiber ring and one of the receivers detect data packet (col. 4, lines 41-59).

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7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 8-9, 28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. (US Patent No: 6,616,349) in view of Mesh (US Patent No: 6,256,431), or Laming et al. (US Patent No: 6,278,818).

Regarding claims 8-9, 28, and 30, Li differs from the claimed invention in that Li does not disclose the OADM consists of pairs of waveguide grating routers. Mesh teaches an OADM (40, fig. 5 and col. 5, lines 64-67, col. 6, lines 1-18) that consists of pairs of waveguide grating routers (44, 48, fig. 5 and col. 7, lines 20-30). Laming teaches an OADM (fig. 5) that consists of a single waveguide grating routers (col. 3, lines 24-25, col. 4, lines 64-67). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate an OADM such as the one of Mesh, or Laming for the add-drop multiplexers of Li in order to provide an add-drop multiplexer with a predefined free space range to separate the higher wavelengths from the lower wavelengths.

9. Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. (US Patent No: 6,616,349) in view of Eskildsen et al. (US Patent No: 5,854,698).

Regarding claim 11, Li differs from the claimed invention in that Li does not disclose the access node comprises of an optical amplifier for amplifying the signals. Eskildsen teaches an optical ring network (100, fig. 1), wherein an access node (185, fig. 1) is connected to an optical

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line amplifier (180, fig. 1). It is well known to incorporate optical amplifiers along the transmission lines, or at the nodes of a network, or at interfaces between the nodes of a network in order to boost the signal strength. Therefore, it would have been obvious to an artisan at the time of invention to incorporate an optical amplifier such as the one of Eskildsen in the interface 50, or in the access node 50 of Li in order to boost the signal strength and to increase the transmission distance.

10. Claims 12, 14, 16, and 18-19, are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. (US Patent No: 6,616,349) in view of Mizrahi (US Patent No: 6,509,986).

Regarding claim 12, 14, and 16, as it is understood in view of the above 112 problem, Li differs from the claimed invention in that Li does not disclose the End station comprises of an optical amplifier used as a channel equalizer to compensate for the loss in the distribution loop and associated components. Mizrahi teaches a ring network (110, fig. 1) having a node (114, fig. 3) with an optical amplifier (399, fig. 3). Therefore, it would have been obvious to an artisan at the time of invention to incorporate an optical amplifier such as the one of Mizrahi in the End station 32 of Li in order to boost the signal strength and to reshape the signal. Regarding claims 14 and 16, as it is understood, Li discloses the end station (32, fig. 2) comprises of a receiver (32, RX, fig. 25) for receiving the information signal (col. 7, lines 40-45). As to a semiconductor optical amplifier, Mizrahi teaches a semiconductor optical amplifier (399, fig. 3). It would have been obvious to a person of ordinary skill in the art to incorporate an optical amplifier such as the one of Mizrahi in an End station such as client node 32 of Li in order to reshape and amplify the signal for further transmission.

Regarding claim 18, as it is understood in view of the above 112 problem, Li discloses the end station (32, figs. 2, 25) further comprises of a passive splitter which taps a portion of the light to a receiver (note that the optical signal received by node 32 is demultiplexed and the optical signal further received by the receiver RX, shown in fig. 25).

Regarding claim 19, as it is understood in view of the above 112 problem, Li discloses the receiver converts the optical signal to electrical signal (col. 6, lines 35-38).

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. (US Patent No: 6,616,349) in view of Delavaux et al. (US Patent No: 5,572,612).

Regarding claim 15, Li discloses the end station (32, fig. 2) comprises of a receiver (32, RX, fig. 25) for receiving the information signal (col. 7, lines 40-45). Li differs from the claimed invention in that Li does not disclose the end station further includes a polarization independent modulator. Delavaux teaches a polarization independent modulator (39, fig. 1) that generates a modulated upstream signal (col. 3, lines 28-30). Therefore, it would have been obvious to an artisan at the time of invention to incorporate a polarization independent modulator such as the one of Delavaux in the End station 32 of Li in order to generate an upstream modulated light signal.

11. Claim 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. (US Patent No: 6,616,349) in view of Barnard (US Patent No: 6,616,348).

Regarding claim 29, Li teaches the end station (32, figs. 2, 25) comprises of a pair of transceivers (TXs and RXs, fig. 25). Li differs from the claimed invention in that Li does not

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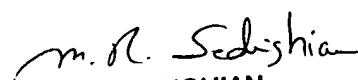
disclose the end station further includes a pair of circulators. Barnard teaches optical circulators (25, 26, 27, 28, fig. 3) that are connected to an OADM (29, fig. 3). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate optical circulators such as the ones of Barnard in the add/drop and client node 32 of Li in order to direct diverse optical signals along different optical paths.

Regarding claim 31, Li teaches the end station (32, figs. 2, 25) comprises of a coarse multiplexer and demultiplexer pair (the multiplexer and demultiplexers that are connected to client node 32, shown in fig. 25).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (571) 272-3034. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


M. R. SEDIGHIAN
PRIMARY EXAMINER